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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/558,273

11/23/2005

Takeshi Izumi

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EXAMINER

SAVAGE, MATTHEW O

ART UNIT

PAPER NUMBER

1797

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/558,273	Applicant(s) IZUMI ET AL.	
	Examiner Matthew O. Savage	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,633,624 to Ito et al in view of pages 1225-1239 of "Boiler Operating Engineering Questions and Answers by P. Chattopadhyay, published on 12-28-2000 and U.S. Patent 3,847,805 to Voedisch.

With respect to claims 5-8, Ito discloses a method for demineralizing condensate in a nuclear power plant (see lines 34-40 of col. 2) by using/method of regenerating (see lines 48-55 of col. 6) a mixed bed of a strongly acidic gel-type cation exchange resin (see lines 47-52 of col. 2 and lines 24-29 of col. 4) and a strongly basic porous anion exchange resin (see lines 22-48 of col. 5), the anion exchange resin having a particle size of 500-1000 micron (see line 31 of col. 5). Ito et al fail to specify the anion exchange resin as having a uniform particle size distribution. Chattopadhyay discloses that ion exchange resins having a uniform particle size, for example, Dowex 550A, have superior performance characteristics for demineralizing condensate than resins having a Gaussian particle size distribution since they are easier to separate for regeneration, impose a lower pressure drop, provide better a filtration function, have better rinse and regeneration efficiency, have a higher ion exchange capacity, faster kinetics, and

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shorter rinse times. It would have been obvious to have modified the demineralizer of Ito et al so as to have included a uniform particle size anion exchange resin as suggested by Chattopadhyay in order to provide a resin having superior performance characteristics. It is noted that Dowex 550A resin only includes 94.5% of the particles as having a particle size within the range of +/- 50 micron as opposed to 95% or more within +/- 100 micron as claimed, however, further increasing the uniformity of the particle size would have been obvious in order to further increase the performance characteristics of the resin. Ito et al and Chattopadhyay fail to specify the step of transferring a slurry including the resins of the mixed bed between demineralization columns and regeneration columns at a decreased slurry concentration. Voedisch discloses a method of regenerating a mixed resin including transferring a slurry (e.g., through valve 26, see FIGS. 1-2 and from line 63 of col. 4 to line 13 of col. 5) including the resins of a mixed bed 12 between demineralization columns 10 and regeneration columns at a decreased slurry concentration (e.g., since the resin is sluiced with water as explained on lines 2-13 of col. 5). Voedisch suggests that such steps provide for the efficient transfer of resin to the regeneration columns. It would have been obvious to have modified the combination of Ito et al and Chattopadhyay so as to have included the transferring step as suggested by Voedisch in order to provide for the efficient transfer of resin to the regeneration columns.

Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-046992 to Hagiwara et al in view of Voedisch.

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With respect to claim 1, Hagiwara et al disclose that a method for demineralizing condensate demineralizer using a mixed bed of strongly acidic gel-type cation exchange resin and a strongly porous anion exchange resin having a Gaussian particle size distribution is known in the art (see the section "description of the prior art"). The disclosed prior art fails to specify the limitations of the anion exchange resin as having a uniform particle size with an average particle size of 500-1000 microns and a particle size distribution in which 95% or more of resin particles are within the range of the average particle size ± 100 microns. Hagiwara et al teach disclose providing an anion exchange resin having a uniform particle size with an average particle size ranging from 500-700 microns, which overlaps the claimed range of 500-1000 microns, in which 95% of the resin particles are within the range of the average particle size ± 100 microns and teach that the uniform particle size anion exchange resin is more effective for capturing organic contaminants eluted by the cation exchange resin than an anion exchange resin having a Gaussian particle size distribution (see the section "means for solving the problem"). It would have been obvious to have modified the prior art mixed bed so as to have included the anion exchange resin having a uniform particle size as taught by Hagiwara et al in order to facilitate the capture of organic contaminants eluted by the cation exchange resin. Hagawara et al fail to specify the steps of regenerating the resin including transferring a slurry including the resins of the mixed bed between demineralization columns and regeneration columns at a decreased slurry concentration. Voedisch discloses a method of regenerating a mixed resin including transferring a slurry (e.g., through valve 26, see FIGS. 1 and 2 and from line 63 of col. 4

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to line 13 of col. 5) including the resins of a mixed bed 12 between demineralization columns 10 and regeneration columns at a decreased slurry concentration (e.g., since the resin is sluiced with water as explained on lines 2-13 of col. 5). Voedisch suggests that such steps provide for the efficient transfer of resin to the regeneration columns. It would have been obvious to have modified the methods suggested by Hagiwara et al so as to have included the transferring step as suggested by Voedisch in order to provide for the efficient transfer of resin to the regeneration columns.

Applicant's arguments filed 7-20-09 have been fully considered but they are not persuasive.

Applicant's argument that Ito fails to specify a uniform particle size anion exchange resin is noted, however, Chattopadhyay clearly discloses the use of a uniform particle size anion exchange resin for demineralizing condensate.

Applicant's argument that Ito et al air scrubs both the anion and cation resins is noted, however, instant claims use the claim language "any one of the following steps" and therefor fails to positively exclude air scrubbing of the anion exchange resin.

Applicant's argument that Chattopadhyay fails to specify the combination of the gel-type cation resin and porous anion resin is noted, however, such a combination is clearly taught by Ito et al.

Applicant's argument that Chattopadhyay fails to disclose the recited improved regenerated techniques is noted, however, Voedisch discloses step (ii) as explained in the above rejections.

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Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O. Savage whose telephone number is (571) 272-1146. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew O Savage/
Primary Examiner
Art Unit 1797

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